

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A high-frequency dielectric heating device for heat-treating a material to be heated, comprising:

a microwave output unit including:

an inverter unit for inverting a direct current into an alternating current of a predetermined frequency by switching a semiconductor switching element by using an inverter control circuit,

heat-radiating fins on which the semiconductor switching element is mounted to radiate the heat generated by the semiconductor switching element,

a printed board having a thermistor for detecting the temperature of the semiconductor switching element, the thermistor being soldered to a leg portion of the semiconductor switching element or near to the leg portion thereof on the side of the soldering surface of the printed board,

a booster transformer for boosting the output voltage of the inverter unit,

a high-voltage rectifier unit for doubling and rectifying the output voltage of the booster transformer, and

a magnetron for radiating the output of the high-voltage rectifier unit as microwave; and

~~a heat cooking chamber fed with microwaves radiated from the magnetron,~~

wherein the inverter unit has a power-down control function for permitting the output power of the inverter unit to vary depending upon the resistance of the thermistor after the start of the magnetron.

2. (Currently amended) A high-frequency dielectric heating device for heat-treating a material to be heated, comprising:

a microwave output unit including:

an inverter unit for inverting a direct current into an alternating current of a predetermined frequency by switching a semiconductor switching element by using an inverter control circuit,

heat-radiating fins on which the semiconductor switching element is mounted to radiate the heat generated by the semiconductor switching element,

a printed board having a thermistor for detecting the temperature of the semiconductor switching element, the thermistor being soldered to a leg portion of the semiconductor switching element or near to the leg portion thereof on the side of the soldering surface of the printed board,

a booster transformer for boosting the output voltage of the inverter unit,

a high-voltage rectifier unit for doubling and rectifying the output voltage of the booster transformer, and

a magnetron for radiating the output of the high-voltage rectifier unit as microwaves; and

~~a heat cooking chamber fed with microwaves radiated from the magnetron~~

a cooling fan for cooling the switching element; and

a controller,

wherein the inverter unit has a power-down control function for decreasing the output power of the inverter unit down to a predetermined value when the thermistor has assumed a predetermined resistance,

wherein a power down control is performed under a rated power (capacity), and

wherein the controller lowers an output of the inverter in case the fan has fault so that the inverter is continued to be operated with the lowered power even if the fan is normally operated.

3. (Original) The high-frequency dielectric heating device according to claim 2,
wherein the inverter unit is provided with a start control circuit which, at the start of the magnetron, controls the collector voltage of the semiconductor switching element to be lower than that of during the steady-state operation, and the start control circuit is utilized when the output power of the inverter unit is to be decreased down to a predetermined value.

4. (Currently amended) A high-frequency dielectric heating device for heat-treating a material to be heated, comprising:

a microwave output unit including:

an inverter unit for inverting a direct current into an alternating current of a predetermined frequency by switching a semiconductor switching element by using an inverter control circuit,

heat-radiating fins on which the semiconductor switching element is mounted to radiate the heat generated by the semiconductor switching element,

a printed board having a thermistor for detecting the temperature of the semiconductor switching element, the thermistor being soldered to a leg portion of the semiconductor switching element or near to the leg portion thereof on the side of the soldering surface of the printed board,

a booster transformer for boosting the output voltage of the inverter unit,

a high-voltage rectifier unit for doubling and rectifying the output voltage of the booster transformer, and

a magnetron for radiating the output of the high-voltage rectifier unit as microwaves; and

~~a heat cooking chamber fed with microwaves radiated from the magnetron,~~

a cooling fan for cooling the switching element; and

a controller,

wherein the inverter unit has a power-down control function for decreasing the output power of the inverter unit down to a predetermined value when the thermistor has assumed a predetermined resistance and, then, for permitting the output power of the inverter unit to vary depending upon the resistance of the thermistor,

wherein a power down control is performed under a rated power (capacity), and
wherein the controller lowers an output of the inverter in case the fan has fault so that the
inverter is continued to be operated with the lowered power even if the fan is normally
operated.

5. (Original) The high-frequency dielectric heating device according to any one of claims 1 to 4,

wherein the output power of the inverter unit is decreased down to a predetermined value when the thermistor has assumed the predetermined resistance.

6. (Currently amended) A printed board with a thermistor comprising:
an inverter unit for inverting a direct current into an alternating current of a predetermined frequency by switching a semiconductor switching element;
heat-radiating fins on which the semiconductor switching element is mounted to radiate the heat generated by the semiconductor switching element, the heat-radiating fins being provided on a first side of the printed board; and
a thermistor provided on a second side of the printed board for detecting the temperature of the switching element,

wherein the switching element is mounted to the printed board such that a body of the switching element is on the first side of the printed board and at least one leg portion extends through the printed board and is soldered to the second side of the printed board,

wherein the thermistor is soldered to [[a]] the at least one leg portion of the switching element or near to the at least one leg portion thereof exposed on the second side of the soldering surface of the printed board.

7. (Original) The printed board with a thermistor according to claim 6,
wherein the semiconductor switching element is an insulated gate bipolar transistor.
8. (Original) The printed board with a thermistor according to claim 7,
wherein the leg portion is an emitter leg of the insulated gate bipolar transistor.
9. (Original) The printed board with a thermistor according to any one of claims 6 to 8,
wherein the thermistor is a chip thermistor.
10. (Original) A high-frequency dielectric heating device for heat-treating a material to be

heated, comprising:

a microwave output unit including:

a printed board mounting an inverter unit,
heat-radiating fins and a thermistor,
a booster transformer for boosting the output voltage of the inverter unit,
a high-voltage rectifier unit for doubling and rectifying the output voltage of

the booster transformer, and

a magnetron for radiating the output of the high-voltage rectifier unit as microwaves;
and

~~a heat cooking chamber for containing a material to be heated thereby to heat treat
the material to be heated by feeding the microwaves radiated from the magnetron into the
heat cooking chamber,~~

wherein the inverter unit is the one mounted on a printed board with a thermistor
according to claim 6.